

Application No.: 09/463,565
Amendment dated: June 9, 2003
Reply to Office Action: May 2, 2003

MAT-7886US

REMARKS/ARGUMENTS

By this Amendment, Applicants have amended claims 1 and 9, cancelled claim 8, and added new claims 11 and 12. Claims 6 and 7 are withdrawn. Accordingly, claims 1-5 and 9-12 are pending.

Election Requirement

Applicants hereby confirm their election of Group I, claims 1-5 and 8-10.

Claim Rejections Under Section 102(b)

Claims 1 and 3 stand rejected under 35 U.S.C. §102(b) as being anticipated by Nikaido. Applicants respectfully traverse this Section 102(b) rejection.

Claim 1 is an independent claim to which claims 2-5 and 9 depend. Applicants have amended claim 1 by incorporating the requirement of cancelled claim 8 which calls for a layer of an electrode active material on the oxide layer. It is Applicants' contention that this requirement is neither taught nor suggested in the Nikaido Patent.

The Nikaido Patent in general relates to a process of treating the surface of aluminum or an aluminum alloy including the steps of contacting aluminum or the aluminum alloy with hot water or steam to form an aluminum oxide layer thereon. Next, electrolysis is conducted using the resulting aluminum or aluminum alloy as an anode by applying direct current in an aqueous solution consisting essentially of a water-soluble salt of at least one oxyacid selected from the group consisting of silicic acid, phosphoric acid, molybdic acid, vanadic acid, permanganic acid, stannic acid, and tungstic acid.

But nowhere in the Nikaido Patent is there any teaching or suggestion of the requirement of a layer of an oxide active material on the oxide layer as set forth in Applicants' amended claim 1. In fact, Applicants note that the Office Action did not reject claim 8 on the basis of the Nikaido Patent, which is an indication that the Examiner recognized that the Nikaido Patent does not teach or suggest the requirement of a layer of an electrode active material on the oxide layer.

Based on the foregoing amendment and discussion, Applicants respectfully submit that the rejection of claims 1 and 3 based on the Nikaido Patent should be withdrawn.

Claim Rejections Under Section 102(e)

Claims 1-5 and 8-10 stand rejected under 35 U.S.C. §102(e) as being anticipated by Carlson. By this Amendment, Applicants respectfully traverse the Section 102(e) rejection.

Claims 1 and 10 are independent claims. Claim 1 is directed to an electrode plate for a battery, wherein the electrode plate includes a surface having formed thereon an oxide layer, with the oxide layer being formed by applying a boehmite treatment to the electrode plate surface, and a layer of an electrode active material is on the oxide layer.

Independent claim 10 is directed to a method for producing an electrode plate for a lithium secondary battery. The method of claim 10 includes the following steps:

- providing an electrode plate,
- forming an oxide layer on the electrode plate by applying a boehmite treatment to the electrode plate,
- applying a paste comprising an electrode active material to the oxide layer, and
- drying the paste.

Claims 1 and 10 are both directed to an electrode plate and method for producing an electrode plate, respectively, and both require applying a boehmite treatment to the electrode plate. It is Applicants' contention that this feature of the boehmite treatment is neither taught nor suggested in the Carlson Patent.

The Carlson Patent in general pertains to separators for electrochemical cells which includes a microporous pseudo-boehmite layer semiconductor electrolyte element comprising such separators; electrical current producing cells comprising such

separators; and methods of making such separators, electrolyte elements and cells. It is Applicants' contention that the pseudo-boehmite coating process described in the Carlson Patent is not the same as the boehmite treatment to the electrode plate surface as required by Applicants' claims 1 and 10.

The Carlson Patent describes a method for forming a separator by "coating onto a substrate a liquid mixture comprising a boehmite sol and then drying the coating to form the microporous pseudo-boehmite layer." (See column 4, lines 18-21 of the Carlson Patent) It is Applicants' contention that this pseudo-boehmite layer is not the same as the oxide layer formed by applying a boehmite treatment to the electroplate surface as required by Applicants' claims 1 and 10.

As disclosed, for example, with respect to Example 1 of the Carlson Patent, Carlson coats a coating mixture of a boehmite sol ($Al_2O_3H_2O$) and a binder (bolyvinyl alcohol) on PET film, which is thereafter dried. Next, the coated film is delaminated from the PET film, and a porous separator is produced. This is in sharp contrast to the boehmite treatment which Applicants use which is a chemical reaction, not a coating as used in the Carlson Patent. In Applicants' claimed invention (as shown for example at page 4, line 1), an electrode collector is made of an aluminum foil, and a boehmite treatment produces aluminum oxide on the aluminum foil by this chemical reaction. Thus, while Applicants use a chemical reaction with respect to the boehmite treatment, the boehmite sol used by Carlson, is nothing more than a coating process. In addition, Applicants' invention relates to an electrode plate, whereas the Carlson Patent relates to a separator.

A further difference between the pseudo-boehmite layer of Carlson and the oxide layer of Applicants' claimed invention is that the pseudo-boehmite layer of Carlson is porous (because it is a separator) in contrast to the oxide layer of Applicants' claimed invention which is non-porous. Applicants' have included this further difference between the Carlson method and Applicants' claimed invention in new claims 11 and 12 which specifically indicate that the oxide layer is non-porous. Accordingly, new claims 11 and 12 are further patentably distinguished from the Carlson Patent.

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For the reasons stated above, Applicants request that the Section 102(e) rejection based on the Carlson Patent be withdrawn.

In view of the foregoing remarks and amendments, Applicants respectfully submit that claims 1-5, and 9-12 are in condition for allowance. Reconsideration and allowance of all pending claims are respectfully requested.

Respectfully submitted,

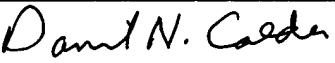
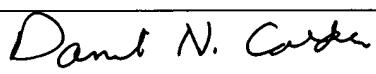
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